

REFERENCE

Ruppel, Gregg. Manual of pulmonary function testing (Fourth edition). The C.V. Mosby Company, 1986, pp. 33-38.

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ETS AND ADULT LUNG FUNCTION

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Hosein, et al., 1986

The use of gas stoves was found to be associated with impaired lung function in women. It was reported that passive smoking in households where gas stoves were used appeared to have no effect on lung function values.

Masi, et al., 1988

The authors concede that their use of multiple tests of significance (involving both exposure and response measurements) are likely to have resulted in some associations achieving statistical significance by chance.

Kalandidi, et al., 1990

Assessment of exposure was based solely on the husband's smoking habit in terms of amount (daily), amount (total), and duration.

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therefore difficult to obtain. The studies are not consistent in the lung function parameters they measure, and there is also a lack of consistency among the results of the same function tests across studies. Following is a presentation of the major studies that have examined these lung function parameters in adults. The investigators who have found associations between impaired lung function and ETS exposure are often uncertain of the clinical meanings of the small decreases observed in their studies. Therefore, it is not suprising that no definitive conclusions have been reached regarding ETS exposure and its possible association with lung function in adults.

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RESULTS OF SELECTED STUDIES: ETS AND ADULT LUNG FUNCTION

Bouhuys, et al., 1978

The authors reported no associations between smoking in the home and increased symptoms or lung function loss among nonsmokers living in the same households.

Shephard, et al., 1979

The authors raise the possibility that subjective reporting of symptoms could have been "suggested" by the odor of the cigarette smoke.

White, et al., 1980

This study has received numerous criticisms.

Comstock, et al., 1981

Passive smoking in the home was not associated with the prevalence of respiratory symptoms and was only "suggestively associated" with impaired ventilatory function.

Kauffmann, et al., 1983

Opposite trends in FEV1 and FEF25-75 were found in men passively exposed to tobacco smoke, and the differences observed in women were slight and not statistically significant.

Jones, et al., 1983

The use of cooking fuels was found to be associated with impaired ventilatory function in a group of nonsmoking women.

Kentner, et al., 1984

Passive inhalation of tobacco smoke at home or the workplace was found not to be associated with impaired lung function in healthy nonsmokers.

Lebowitz, et al., 1985

Reported no direct association between ETS and lung function parameters in adult nonsmokers.

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LUNG FUNCTION IN ADULTS

The studies that have investigated lung function in adults and its possible relationship to environmental tobacco smoke exposure are presented in this section. To aid in the interpretation of this literature, definitions of the major lung function parameters are provided below.

Df: One of the most widely used measures of pulmonary function in adults and children is **forced vital capacity** and is represented in the literature as **FVC**. This term refers to the maximum volume of gas that a person can expire as forcefully and rapidly as possible from their lungs immediately following a maximal inspiration of air. When a person's ability to expire air forcefully and rapidly from their lungs (**FVC**) is compromised, this can possibly be an indication of chronic obstructive lung disease. Decreased **FVC** is common in restrictive diseases such as pulmonary fibrosis and in obstructive diseases such as emphysema and asthma.

Df: A second important measure of pulmonary function is the **forced expiratory volume in one second**, which is abbreviated as **FEV1** in the literature. The **FEV1** measure is simply the amount of air that is expired in the first second of the **FVC** maneuver. As with **FVC**, this parameter is useful in the assessment of airway obstruction. The two parameters, **FVC** and **FEV1**, are often used in a ratio to determine the percentage of a person's **FVC** that is expired in the first second of the maneuver. A **FEV1/FVC** ratio lower than 65% to 70% is characteristic of obstructive lung disease. On the other hand, subjects with restrictive lung disease will often show a normal or exaggerated **FEV1/FVC** value.

Df: **Forced expiratory flow**, known as **FEF25%-75%**, is the average rate of flow of air during the middle half of an **FEV** maneuver. The **FEF25%-75%** is indicative of the status of the medium and small sized airways. Decreased values of **FEF25%-75%** are common in the early stages of obstructive lung disease. Low values of **FEF25%-75%** in combination with normal values of **FVC** and **FEV1** are often indicative of early small airways abnormality. Reduced **FEF25%-75%** are sometimes seen in cases of severe restrictive disease as well.

All of these measures share a common problem: accurate assessment requires the full cooperation and maximal effort of the subjects under investigation. Accurate measures are sometimes

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